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United States General Accounting Office  
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Health, Education, and  
Human Services Division

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June 23, 2000

The Honorable Daniel Patrick Moynihan  
The Honorable Charles E. Schumer  
United States Senate

The Honorable Gary L. Ackerman  
The Honorable Joseph Crowley  
The Honorable Eliot L. Engel  
The Honorable Vito J. Fossella  
The Honorable Carolyn B. Maloney  
The Honorable Jerrold L. Nadler  
The Honorable Major R. Owens  
The Honorable Charles B. Rangel  
The Honorable Jose E. Serrano  
The Honorable Edolphus Towns  
The Honorable Anthony D. Weiner  
House of Representatives

Subject: West Nile Virus: Preliminary Information on Lessons Learned

At your request we are performing a review of the lessons learned from the 1999 outbreak of West Nile virus in New York City and surrounding areas, for bioterrorism preparedness and related public health policies. This letter, as requested by your office, provides information on our progress to date and our preliminary findings.

We are currently completing fieldwork for this assignment, including interviews with and documentation gathering from key officials and agencies involved in the identification of and response to the outbreak last fall. These parties include: the infectious disease physician in northern Queens who first reported the unusual illnesses; city and state health department and emergency preparedness officials who responded to the report; Centers for Disease Control and Prevention (CDC) epidemiological, emergency preparedness and other officials involved in the outbreak; federal, state, and academic laboratories contributing to the identification of the virus including the laboratories of the Department of Agriculture, the Department of the Army, and the University of California, Irvine; wildlife and zoo officials who tracked the virus's impact on birds, and others. Our work is designed to provide information on

- The significant events and communications that occurred between key involved parties and agencies throughout the crisis, from the first doctors who diagnosed the illness to the federal officials mounting a response, and
- The lessons learned from these events for bioterrorism preparedness and related public health policies.

Information collected to date indicates that many officials and experts believe aspects of the outbreak investigation went very quickly and very well. These include the physician's reporting of the initial unusual symptoms and the role the local health department epidemiologists played in quickly mobilizing a broad-based outbreak investigation. Further, particular aspects of the communications between involved parties were considered useful for disseminating information. For example, throughout much of the crisis, daily conference calls on the status of events were conducted involving officials from as many as 18 different local, state, federal and other agencies. Finally, experts also point out that, while the virus was initially incorrectly diagnosed as another related virus, the misdiagnosis did not affect the appropriate treatments for patients or the public health response.

Most parties interviewed to date also believe there are lessons to be learned from the events, particularly related to communication and infrastructure issues, that may be relevant in designing future preparedness measures. Even though this was a relatively small outbreak, it consumed the time of dozens if not hundreds of officials from local, state, and federal public health and other agencies and organizations, and greatly strained available resources. Many involved officials believe that the outbreak was another "wake-up call" that public health officials must anticipate and be better prepared to respond to such surprises. Officials also believe that the outbreak illustrates the need for a better public health infrastructure at the local, state, and national level to control infectious diseases, particularly those that are vector-borne. Work to date indicates that any problems identified are likely to revolve around such things as the following:

- Communication between and among local, state, and federal public health agencies. Rapid and reliable communication between public health agencies is considered essential to preparedness and coordination—as the ability to disseminate and share information rapidly among public health officials helps ensure that decisions are made with the most current information available. Officials involved in the West Nile events indicated that the communications that occurred (for example, the daily conference calls and phone conversations between agency and organization officials) helped update involved parties as the investigation unfolded. However, some key officials indicated to us that they believed this means of sharing information was time-consuming and inefficient and that alternatives for communicating detailed information were needed so they could use their expertise and skills to conduct the investigation. Some people also indicated that there was much confusion during the course of events about "who to call" for various types of information or to handle various responsibilities or who within each agency could be considered a responsible spokesperson and information source.

- Communication between public health agencies and other organizations with relevant information, such as animal health experts. Livestock animals and wildlife are often considered sentinels, providing an early warning device for diseases that could harm people. Assessments of the West Nile events and many officials we interviewed said that the events highlighted the need for better integration and communication between animal/wildlife health communities and public health. Since the initial outbreak, CDC, state wildlife veterinarians, and an expanding group of federal and other agencies are using deaths in crows as sentinel events to define the current geographic distribution of mosquitoes and birds infected with West Nile virus.
- The adequacy of epidemiological capacity and local level disease surveillance systems. The outbreak was initially identified because an astute physician reported two unusual cases of illness to the City Health Department, and active surveillance in New York City confirmed 62 human cases of the disease. Physicians are required to report encephalitis cases to the Health Department; however, the West Nile investigation confirmed that such reporting often did not occur. During the West Nile investigation, the six New York City Health Department staff who normally track over 50 reportable infectious diseases in the city—along with several others detailed to assist from other divisions and agencies—worked long hours seven days a week to contact relevant officials at 70 hospitals to identify potential cases, interview patients and families, track cases, and ensure laboratory samples were shipped to appropriate parties, among other duties. Officials indicated that the availability of even the small number of trained staff in New York City was critical to the quick response to the initial outbreak. Such capacity at the local level is thought to be lacking in many other locations.
- The adequacy of laboratory capacity—especially “surge capacity” to allow a quick response to an unexpected crisis. A frequent theme of discussions and assessments has been the adequacy of laboratory infrastructure at the state and federal levels for performing timely and thorough laboratory analyses. Officials pointed out that there are only two federal laboratories capable of handling those infectious agents considered of most concern. Further, most laboratories, including veterinary laboratories, are not equipped to identify diseases that are rarely seen. Inadequate “surge capacity,” the ability to deal with a sudden increase in needed testing, was another cited concern. According to officials we spoke with, laboratory capacity for performing the tests needed to identify the West Nile virus and to diagnose which people had the virus was consumed quickly by this relatively small outbreak.
- Potential problems in distinguishing between a naturally occurring biological outbreak and one that is intentionally caused. While the West Nile virus outbreak is thought to have been a naturally-occurring event and officials interviewed indicated that the investigation did not find otherwise, at one point there was speculation in media reports that the outbreak might have had an unnatural (bioterrorist) origin. Because of this, experts indicate that this episode does illustrate the potential problems in distinguishing natural disease from an intentional attack. The source of the disease (whether natural or intentional) would not change the process to diagnose and treat patients. However, if local health officials are informed of a bioterrorist incident or threat, or if a health department or CDC investigation determines that an event is likely a bioterrorist one, then additional organizations would need to become involved to carry out a criminal investigation. Current recommended protocols are to notify the Federal Bureau of

Investigation and law enforcement officials, who would also seek to determine whether terrorists had targeted additional locations for release of the disease.

We will be providing a final report of our findings in early September 2000, including more detailed information and agency comments. As agreed, unless you publicly announce the contents of this letter earlier, we plan no further distribution of it until 3 days from the date of this letter. At that time, we will send copies to the Honorable Jeffrey P. Koplan, Director of CDC, the Honorable Dan Glickman, Secretary of Agriculture, and other interested parties. We will make copies available to others upon request. If you or your staffs have any questions, please contact me at (202) 512-7119. Other major contributors to this letter included Linda Bade, Marcia Crosse, Katherine Iritani, Anita Kay, and Deborah Miller.

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